AMENDMENTS TO THE CLAIMS

1. (original) A method of measuring a propagation time of a sound wave between a speaker and a microphone, comprising:

a first step of outputting a time stretched pulse from the speaker;

a second step of receiving a sound signal output from the speaker in the microphone and taking in the received sound signal from the microphone; and

a third step of calculating a cross-correlation function of the time stretched pulse and the received sound signal taken in the second step, wherein

the propagation time of the sound wave between the speaker and the microphone is found based on the cross-correlation function.

2. (original) The method of measuring a propagation time of a sound wave between a speaker and a microphone according to claim 1, further comprising:

a fourth step of detecting a time when the cross-correlation function has a maximum value, a time when the cross-correlation function has a minimum value, or a time when the cross-correlation function has a maximum absolute value.

3. (previously presented) The method of measuring a propagation time of a sound wave between a speaker and a microphone according to claim 1, wherein the first step, the second step, and the third step are performed plural times, the method further comprising:

a fifth step of synchronizing and adding a plurality of cross-correlation functions obtained in the third step performed plural times,

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wherein the propagation time of the sound wave between the speaker and the microphone is found based on the cross-correlation function obtained by synchronizing and adding the plurality of cross-correlation functions.

4. (original) A device for measuring a propagation time of a sound wave between a speaker and a microphone, comprising:

a sound source means; and

a calculation means, wherein

the sound source means is configured to output a time stretched pulse as a sound source signal input to the speaker, and

the calculation means is configured to take in, from the microphone, a sound signal which is output from the speaker and is received in the microphone, and to calculate a cross-correlation function of the time stretched pulse and the received sound signal taken in, and to find the propagation time of the sound wave between the speaker and the microphone, based on the cross-correlation function.

5. (original) The device for measuring a propagation time of a sound wave between a speaker and a microphone, according to claim 4, wherein the calculation means is configured to detect a time when the cross-correlation function has a maximum value, a time when the cross-correlation function has a minimum value, or a time when the cross-correlation function has a maximum absolute value.

6. (previously presented) The device for measuring a propagation time of a sound wave between a speaker and a microphone, according to claim 4, wherein the sound source means is configured to output the time stretched pulse plural times, and

the calculation means is configured to calculate the cross-correlation function for each time stretched pulse output from the sound source means, to synchronize and add cross-correlation functions, and to find the propagation time of the sound wave between the speaker and the microphone based on the cross-correlation function obtained by synchronization and addition.

7. (previously presented) The method of measuring a propagation time of a sound wave between a speaker and a microphone according to claim 2, wherein the first step, the second step, and the third step are performed plural times, the method further comprising:

a fifth step of synchronizing and adding a plurality of cross-correlation functions obtained in the third step performed plural times,

wherein the propagation time of the sound wave between the speaker and the microphone is found based on the cross-correlation function obtained by synchronizing and adding the plurality of cross-correlation functions.

8. (previously presented) The device for measuring a propagation time of a sound wave between a speaker and a microphone, according to claim 5, wherein the sound source means is configured to output the time stretched pulse plural times, and

the calculation means is configured to calculate the cross-correlation function for each time stretched pulse output from the sound source means, to synchronize and add cross-correlation functions, and to find the propagation time of the sound wave between the speaker and the microphone based on the cross-correlation function obtained by synchronization and addition.